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Integrating Technology in Today's Classroom

Katherine J. Shea
University of Mary Washington

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Pledge: I hereby declare upon my word of honor that I have neither given nor received unauthorized help on this work. *Katherine Shea*

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Technology Integration with Classroom Instruction Lacking

Problem Statement

Educators should incorporate regular usage of technology with each student across curricula. Regular access means that all students can use technology daily in each classroom for more than basic office software functions. Every student should be provided with a current technological device during each instructional session. Students need to have opportunities to explore through these devices, learning to understand the how and whys technology works. Global exposure through technology will provide students with needed information to be fully able to engage in the world today and into the future.

Unfortunately, due to the high cost of funding technological devices for each student and available school system budget constraints, many students do not have the opportunity to use technology inside the classrooms. If a student does have personal technological devices, he may be prohibited from bringing it to the classroom or the device is too current for the resource connections at the school. Many students today do not have daily regular interaction with technological devices within the school day. If they have an opportunity, many times the educators are less knowledgeable about technology and devices that the student does not gain any new skills from the experience. The alternative issue is that the technological devices are not available for the teacher, incompatible, outdated, or broken.

The lack of technological interactions for students will prevent them from being competently prepared for the global workforce and economy. With each ensuing graduating class of students, the problem will increase and the population will eventually become illiterate to the ways of technology and the world around them. Failure to keep students current with

technological devices and informational experiences will hinder them from being successful in the workforce of the future. Our schools and educators need to begin now to incorporate technological opportunities for students across curricula through technology. Not only does technological devices need to be available but the educators who use them with the students need extensive training so that they are able to provide experiences for the students to engage in a more demanding technologically based society.

Rationale

Classroom instruction has changed over the years and today it includes a variety of technological devices. Students are bringing their own devices to use in schools. They now have the ability to use their personal technology daily during instructional settings. Adding technological content to classroom instruction provides the opportunity for more a more engaging learning environment which can lead to more critical thinking and building communication skills. Students need a variety of technological skills, including how devices operate as well as software applications and programming. More exposure through the education system can provide these students with a better skill set for the future if teachers are not barriers for technological incorporation within classroom instruction. Teachers want to provide technological devices and integration in their daily lessons but the barriers such as lack of equipment availability, the desired equipment not available and the discrepancies with the technology software and hardware are some important issues they face each day. In addition, teachers also take considerable effort in order to provide technology into lessons, even if lessons have time constraints.

The amount of technology teachers' use in the classroom is limited to desktops, interactive whiteboards, along with speakers for those devices and wired internet access (Kervin,

Verenikina, Jones, & Beath, 2013). Teachers use less technology in school than they are using when they are outside of school. Outside of school teachers are able to use wireless internet access, printers, laptops and a range of mobile devices without restriction (Kervin, et al., 2013). Many of these same devices are not available to teachers at their workplace. In a study during 1995 through spring 2006, teachers and students were surveyed about technology usage inside and outside of school and why they used the devices. The teachers believed it was a more useful tool outside of school. With students using technology more regularly and being able to teach their teachers new technological skills, teachers used more technological devices. When teachers learned new skills from their students, this influence was found to be a deciding factor on how teachers used technology in their classrooms (Xiaoqing, Yuankun, & Xiaofeng, 2013).

Research Questions

1. Why is technology important to the future of student education?
2. What are the barriers to technological integration in the classroom?
3. What problems do teachers and students bring into the technology integration efforts?
4. What professional developments courses should teachers receive?

Literature Review

Future Student Education

There is a need for people to get e-learning opportunities right now, not many years in the future. Students need active engagement which is something that e-learning can offer. Student engagement is a positive outcome, but also developing students to have more critical thinking skills, self-reflections, and value on contributions to the world (Siu Cheung, K., Tak-Wai, C., Griffin, P., Ulrich, H., Huang, R., Kinshuk, ... Shengquan, Y., 2014).

Students can use blogs to build skills in critical thinking, reflection, analysis, and evaluation. Students can write, describe, self-reflect, self-express, and communicate to peers. Blogs offer students opportunities through classroom assignments on the blogs. This gives students who are reluctant to talk to peers an opportunity for a pressure free way to communicate with other students. This will build student skills in a variety of areas as well as expose them further to others places on the web that allows for communication opportunities (Boyd, P., 2013).

Students need exposure to a variety of technological devices in order to maintain enough knowledge to be competitive in the global job market. Even though students have newer devices than schools provide, they still need instruction on how to get the most of the technology they have available. Having technology integrated into the school curriculum provides students opportunities to daily exposure to a variety of devices, learn how to operation them, understand the use of software programs, and especially, the internet. Students can use the instruction about learning how to research information, how to identify good sources versus poor sources, learn to critically think about things they are reading about on web pages, how to be able to operate in a growing paperless economy, and so much more. Even paper job applications are becoming fewer where companies prefer to put digital applications on their web page instead.

Barriers

With the increase cost of basic necessities, it is not uncommon that schools experience the limitation of having the tools most desired, technological devices. Though there are barriers to providing technology to all students, there are several factors that affect purchasing, integration, and usage of technology in the classroom. Some factors include a limited number of devices available to a large number of students, teachers needing more technology training, instruction for integrating devices into curricula, and limited monetary funding.

Devices

There are not enough technological devices for each student in most schools. Schools can have a wide variety of technology devices and exposure opportunities but there are simply not enough for all students. In a study by Kervin, L., Verenikina, I., Jones, P., and Beath, O. (2013), focused on teacher incorporation of technological devices within instructional hours and only about 1/3 of schools surveyed in the study had access to mobile devices. The most common technologies available were desktops, interactive whiteboards and Wi-Fi. However, many schools had technology available for sharing among classrooms, not for each classroom at the same time. Many times the technological devices were outdated, broken or simply not available for use when needed. With devices not being up-to-date, students owned and used more progressive equipment than what was provided for them through schools. Not only were the devices not current but the software running on them was also outdated. School systems should survey the teachers about technology needs, how it is accessible to all students and the usability of technology across curriculums (Kervin, et al., 2013).

Funding

Budgets Allocations. A school budget is a financial plan that provides expectations of the future expenses and funding for the school. Within any school system, each school will have its' own budget for its' own expenses which is a part of the total budget for the school division.

State Grants. The Virginia Department of Education raises money through Technology Equipment Notes, Series XIV, to provide schools with installment funding to purchase technology devices. This funding is for schools to ensure they are conforming to the Standards of Learning Web-based Technology Initiative. However, this funding does not ensure that all students have a computer at the same time, but at a ratio of five students to one technology device. If they are meeting the initiative, then schools can choose to use the funding to provide additional technology devices other than computers at their discretion. In addition, the funding is specified to work top-down through the school levels, with the high schools being first and elementary schools last (Staples, 2014).

Other Resources.

Partnerships. In order to enhance student development with technology there is a need for companies to pair with educational institutions. Company partnerships can allow for increased resources in the classrooms, not just technological but academic resources. If companies organize partnerships with schools (K through 16 years) then schools will have the ability to give students better opportunities for more engaging instruction using technological devices (Bozic, C. & Dunlap, D., 2013).

PTAs/PTOs. Parent Teacher Associations (PTAs) provide a partnership where individuals and organizations work to reach set goals that enrich the lives of the students. PTAs are able to be a resource for minor technological devices if this line item can be voted on,

accepted and put on the budget. When the line item is listed, the PTA organization will ensure the individuals of the schools and community organizations can raise funds to purchase the devices (National PTA, 2014). PTOs are parent and teacher organizations that fulfill many of the similar goals that PTAs provide (School Family Media, Inc., 2014). However, schools typically have either a PTA or a PTO group.

Teacher Technology Background. The amount of technology teachers' use in the classroom is limited to desktops, interactive whiteboards, along with speakers for those devices and wired internet access (Kervin, et al., 2013). However, teachers use less technology in school than they are using when they are outside of school. Outside of school, teachers are able to use wireless internet access, printers, laptops and a range of mobile devices without restriction (Kervin, et al., 2013). Many of these same devices are not available to teachers at their workplace. In a 1995-2006 study, teachers and students were surveyed about their technology usage inside and outside of school. The teachers believed it was a more useful tool outside of school. With students using technology more regularly, they are learning more skills than some teachers and students willing want to pass that skill along. Teachers are then more open to use more technological devices and in new ways. When teachers learned new skills, this was influential in how teachers used technology in their classrooms (Xiaoqing, Yuankun, & Xiaofeng, 2013).

Teachers use a variety of technological devices within their classrooms, especially multimedia. The teachers' use of these devices is dependent on their believed usefulness of the device, meets the task, and social influence from peers and students guiding use. Teachers' beliefs and attitudes with technology is an additional factor in the amount of incorporation within classroom instruction. Less experienced (less than 5 years) teachers use technology less that

those more experienced. Class preparation and administrative purpose are tasks that teachers most use technology for in the classroom (Potter, S. L., & Rockinson-Szapkiw, A. J., 2012; Xiaoqing, et al., 2013).

Technological experience can include a variety of skills from basic computer operation to programming languages and creating a product. Are current teachers trained thoroughly enough to be able to offer more advanced technological instruction to their digital native students? In the studies about librarians, digital natives and synergies, the findings were that teachers have the desire to learn more about technology, why it works, how to integrate technology into daily classroom instruction, and how to ensure that they are meeting the needs of students, but the teachers lack training (Emanuel, 2013; Kervin, et al., 2013; Xiaoqing, et al., 2013).

Additionally teachers attend college to be educated for the teaching profession and technology is a minor part of that education. In today's technology world, teachers have to go back and get additional education in order to keep up with technology. Schools do not always provide enough proper education through professional development for technology for all teachers. These same teachers believe that they will not gain enough technological education in their school as well. Unfortunately, these are exactly the skills they need to have to be able to incorporate meaningful technological experiences for their students to be prepared for a global technological society.

Student Technology Background. Student factors are also a part of technology issues within classrooms. Students, mostly digital natives, are frustrated as well as teachers. Many students have more knowledge about technology than their teacher, which leads to frustration and lack of engagement. Students might get more visual learning through technology; however, that is not always the case due to lack of equipment, frustration with outdated equipment, limited

accessibility of devices, and desire to learn about the new technology, not the older versions (Emanuel, 2013; Kervin, et al., 2013; Xiaoqing, et al., 2013).

With the current demand for students to be able to utilize technological devices to their fullest potential, the availability of devices in schools is increasing so there is no longer a restriction on when students are exposed and learn about technology. Primary teachers were the most participants that desired to have technology integrated in their classroom instruction. This finding relates to the need for all levels of students need to have technology and that grade level does not dictate which students should or should not have devices (Kervin, et al., 2013).

Students are using technological devices more often at their homes than in school settings. The amount of years of usage can be a minimum of three years for about 70% of the students. In comparison in the school setting, however, younger students get less time using technology than older students (Xiaoqing, et al., 2013).

Professional Development

Professional development sessions are offered to teacher to provide additional training opportunities that include learning how to operate technological devices, watch some modeled instructional practices, and provide connections to practice skills through inquiry-based learning. However, most current professional development sessions are not effective. Many focus on technical skills and overlook the pedagogical or curricula content that would then flow onto integration. (Parr & Ward, 2011). Professional development sessions fail to take into consideration teachers' beliefs, attitudes, and any prior experience. As well as which technical device teachers currently use and how do they use them (Parr & Ward, 2011; Potter, et al., 2012).

Teachers are using laptops and desktops to plan lessons, short-term and long-term. They are also using devices to record assessments, student observations, differentiation, and visual

aids (photographs and videos). Some teachers provided blog sites for students for assignments that included research, critical thinking and more (Parr, et al., 2011; Potter, et al., 2012).

Teachers lean on professional development courses for training. They do wish to upgrade their skills but due to time constraints they self-teach rather than go outside the school system to get technological training. Training is not always effective so teachers do not get what they need out of the sessions. New teachers graduating from college stated that they are not receiving the necessary technology training that is useful on the job (Emanuel, 2013).

Administration pressures teachers to integrate technology within their instruction but teachers face obstacles in doing so. There are many obstacles that come with using technology such as attitude, confidence, frustration, adapting to change, time, pressure to use technology and social influences. Teachers must have a positive attitude when it comes to incorporating technology in their pedagogies but that is not always the case. Attitudes can be negative due to frustration with technological devices not being available, broken devices, outdated devices, or no personnel support with technological issues during instructional times. Schools do not always provide internet connectivity through the school either. Many teachers are spending at least 30 hours weekly to find lessons that support technological integration (Kervin, et al., 2013). They are doing this research on their own time. Many schools only allow equipment checkout outside of regular workday hours. Teachers face a wide berth of problems when dealing with technology and these problems lead to less integration within instruction (Emanuel, 2013; Kervin, et al., 2013; Xiaoqing, et al., 2013).

Improvements to professional development sessions. Professional development sessions would be most effective when it includes instruction on technology device operation, instruction to applications, integration into curricula, as well as including a mentor and

community support (Potter, et al., 2012). A comprehensive approach is suggested to include training in technical and pedagogical support, effective leadership, curricula and assessment resources (Parr, et al., 2011). The most important thing is that teachers get proper support continuously (Wang, F., & Reeves, T. C., 2003).

Devices. First-year teachers and veteran teachers have different outlooks on technology and abilities when it comes to using technology. Many teachers unfortunately lack the proper operational instructions to use technology available to them. They were never instructed to operate many devices and do not have staff to provide that to them prior to trying to utilize the device. Since that is the case, teachers can become frustrated and lose interest in using the devices. Frustrating and lack of interest with technology can lead to less use of technology as well as teachers going back to lessons that do not include technological devices. If teachers cannot use the devices, they cannot apply them in student applications (Potter, et al., 2012).

Teachers need the professional development courses to provide training with operating the technology they can use at school. However, this is not to be the primary focus of the professional development. Training should be introduced and teachers be allowed to practice with the devices and then move on through the session (Potter, et al., 2012).

Software. In addition to teacher frustrations with operating technology, software programs adopted by schools can also create problems. Teachers are required to use software for emails, for blogs or web pages for their classrooms, for grades and report cards, and more. There is not always training provided or manuals to help instruct teachers with this school-adapted software (Potter, et al., 2012).

Integration into Daily Lessons. Teachers need to be provided with professional developments that educate them on how to integrate technology. They need to see modelling of

instruction (in and out of professional development sessions), learn how technology can be used to provided relevant activities, how technology can meet the teachers' needs, creative ways to incorporate technology, and more. Simply training a teacher how to use equipment and software does not qualify them to understand how to properly integrate technology within classroom instruction, they need to be taught how (Parr, et al., 2011; Potter, et al., 2012).

Technology Devices Available. Teachers need to learn about the technology devices that they have available to them and their students so they can be prepared to use what is available at their facilities. Devices are updated regularly and school budgets, partnerships and fundraisers are not always able to provide funding to obtain newer, more up-to-date devices, software programs, or building technological upgrades. During the professional development sessions, there should be opportunities to learn how to use devices available to accomplish similar technology efforts. For example, a classroom does not have a hover cam and you want the students to be able to see what you are showing them. If your computer has a camera and that computer also is hooked up to a projector, then you have found another way to accomplish the same.

Continue Integration Training. Each school should provide for each grade level a mentor for other teachers. A mentor should be chosen because of her skills with integrating technology successfully. Teachers need support and more time than a professional development opportunity. They need to have someone that they can refer to that understands and can provide assistance with curricula alignment, follow-up activities, and help the teachers to build confidence in the technology they are using in the classroom. Mentors need to be available regularly and not once a week or less for this to be beneficial (Parr, et al., 2011; Potter, et al., 2012).

Conclusion

In conclusion, even though there are barriers that exist that prevent proper integration of technology in to classroom instruction, there are avenues that administrators and teachers can take to get around those obstacles. Funding to provide enough devices for each student is difficult; however, there are several places that schools can look to in order to help raise funds. State grants, partnerships, PTAs/PTOs, and school budgets are all places that administrators and teachers can begin to look for additional technology funding.

However, if these are not enough to still provide technology to all students, teachers should be taught creative ways on using what is available. Teachers can learn from teachers, mentors, and other professionals that come and provide professional development sessions on this specific topic. The lack of devices should not prevent technology integration but rather as an opportunity to use the resources available to teachers.

Teachers and students are coming from different technological abilities when they arrive at school. Many students already know more about technology, newest devices, and programs than teachers do. This is a problem for the teacher when they do not know how to further encourage students to engage in the technology opportunity. Students and teachers can work together to teach each other new things but they can also provide teachers with an opportunity for students to show classmates as well. This encourages regular peer interaction.

Teachers rely on professional developments to learn the most about technology. Courses through public colleges and conferences is very time consuming and costly. These courses may not even focus on the main needs of the teachers or administrators attending.

Professional developments that are offered need to improve in order to better train teachers with technology integration. First, they need to find out what do teachers believe about using technology, what they know, and what they need to know. Second, the sessions should provide a short segment of providing operating instruction for the devices that teachers and students will be using. Third, the professional develop should offer a portion to model instruction, provide opportunities to explore relevant technology opportunities, show teachers how technology is used in pedagogy correctly, and demonstrate how to align technology with student learning.

When professional development sessions are completed, there should be a person that teachers can go to regularly. A mentor is a great resource for all teachers. The mentor should be one that has done well with technology integration, understands how the technology works, and can provide ways to use technology they have available creatively. There should be several mentors at every school so that they are not overwhelmed and can provide quality assistance to each teacher that asks for help.

With these suggestions, changes can be made to help guide teachers to correct technology integration into curricula using a variety of resources available to them. Professional developments can further instruct teachers on operating devices, software, and being more creative users of technology that have available. Teachers will have mentor that is a staff member in this school system. The mentor can provide ongoing instruction to help align technology with student application and to ensure successful technology integration. Implementing the suggested options can provide students with additional technological information, how to complete tasks using technology in a variety of ways and how to be able to

be critical thinkers as well. Students will need these additional experiences and skills to be able to be a marketable resource in the global economy.

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Appendix

Integrating Technology

Professional Development

Objective

Provide instruction on how to integrate technology within teacher's pedagogy to ensure full student engagement and be able to align with curriculum standards.

Survey Questionnaire

Survey will be provided to participants when they register online to enable the professional development to focus on the needs of the teachers and to integrate and align technology within their pedagogy.

Outline of Course

This professional development course will run from 8am until 5pm. Sessions will be 11/2 hours each with a 30 minute break for lunch. A thirty-minute session is allotted for mentor assignments prior to closing. Suggested session times are as follows in the below table.

Opening	8:00 am - 8:30am
Session 1	8:35 am – 10:05am
Session 2	10:05 am – 11:35 pm
Lunch	11:40 am – 12:10 pm
Session 3	12:15 pm – 1:45 pm
Session 4	1:50pm – 3:20 pm
Mentor Assignments	3:25 pm – 3:55 pm
Closing	4:00 pm – 4:15 pm

Introductions

Introduce and welcome all participants and staff. Provide essential building information including room assignments, facilities, food areas, and where to go with questions. Also remind all participants that they will need their packets throughout the day. Check to see if any participants have not received their packet and provide a location for those needing one to obtain one.

Purpose

Provide technology training to teach educators steps to integrating technology within their curricula, ensuring alignment, engaging students, and being creative with technology that is available.

Closing

Participants will gather for a closing which will provide information about any upcoming professional development sessions. They will also be given a professional development points certificate for attending and completing the training. A survey will be provided for all participants in order to get reflections of the professional development so that we can continually improve the opportunity.

Session 1

Objective

Participants will learn how to operate all technological devices within the school building. Participants will also get an overview and hands-on practice with required software programs and the devices the software operates on.

Required Technology Devices

The classroom should contain a minimum of three of each type of device that the school system currently has available for use by educators and students. In order to have enough for all participants, choose at least one of the devices that is the most predominately used to fill the remaining classroom seats. Provide identification labels for each device along with operating instructions, printed on cardstock and laminated. Each participant must have at least one device for use during this session.

Required Materials

Packets. In addition, provide each participant with a professional development packet for this course. Papers included in the packet are cover page, session schedule, contact information for the organizers of the professional development, devices information, session notes, website resources, personnel resources, mentor expectations, contacts information, and surveys for the professional development sessions. The packet should also include pages that participants can take further notes as they work through each session. Sample packet pages can be found at the end of this professional development section.

Software operating instructions should include how to open the software, which device required software operates on, how the software is used, and the basics required of the teacher in the software program. These pages can outline the information, but also provide a more in-depth

booklet (online that they can download) to provide information on troubleshooting and other benefits of that particular software program.

Session Lesson Plan

Participants will work in two groups (or the number of groupings necessary for your facility accommodations) in a round-robin fashion to learn about each of the devices available. First, instructors will teach participants about the technology devices in the classroom. Participants will learn how to operate these devices (such as turning on and off the device). Second, instructors will overview school required software programs and what devices these programs operate on. In the final portion of this session, all participants will be given hands-on opportunities to go through each of the software programs and to operate them on each of the devices.

Allow teachers to go through all devices and learn how to operate, demonstrate they understand how to operate, reserve equipment, and to ask questions. Instructors will demonstrate how to reserve equipment. Have participants practice reserving a device that is not a part of their current classroom equipment. Model a problem with equipment and have participants strategize how to troubleshoot minor issues. Provide them with the time when it is necessary to fill out a trouble ticket or ask a mentor for assistance.

Conclusion

When the last session is completed, this classroom will be used for the participants to practice using their new skills on the equipment. Ensure that all equipment is functional and is prepared to be used. When the hands-on opportunities are over, shut down all equipment and return borrowed equipment to the coordinator on staff.

Session 2

Objective

Provide training to pre-service and new teachers about the various technologies that their facilities provide. Assist and provide information on how to properly integrate technology with their curricula in order to get the best outcomes for the students without changing curricula standards.

Required Technology

The classroom should provide a variety of the facilities technology devices. Ensure that every participant has a device to use if they did not already bring their own device.

Required Materials

The participants will need their packet to record notes.

Background Information

Many pre-service teachers are lacking the technology skills that would enable them to properly integrate technology. They typically receive just-in-time help rather than receiving quality instruction to manage technology and integration on their own. There is a desire to learn how to integrate technology and align with curricula. Providing local professional development opportunities and maintaining focus on student learning and not just technology are needed. In addition, teachers need continuous professional development sessions in order to continue with proper integration of technology into their own pedagogies.

Session Lesson Plans

Participants will be working in this session as a student in a classroom. The instructors will provide a curriculum stand to cover that will overview a topic that spans many grade levels.

The instructor will demonstrate how the lesson will work, along with technology, but integrating with the standard, enhancing the learning and promote critical thinking.

Instructor will plan prior to this professional development a lesson plan that will demonstrate to the participants the progression from using technology as a minor focus to a blend of technology and standards into a single entity.

At the end of the lesson, provide an open session for comments, questions, and suggestions. Allow participants to interact with each other as well to help transmit knowledge learned. Provide feedback about the different segments of the instruction and help participants to recognize the importance of the steps of change to technology focus to integration focus.

Session 3

Objective

Participants will learn about the TPACK program. They will learn background history of the program. The various segments of the program work together to help participants to build an integration of technology into their pedagogy.

Required Technology

Participants will need to have an internet connected computer device for hands-on practice and research segment.

Required Materials

Participants will need to have the packet received in session 1. Provide pencils or pens for those participants needing a writing utensil. Mentors need to be available during the hands-on portion of this session.

Session Lesson Plan

The information that follows is background about the TPACK program. It describes each of the segments included in the program and the basis for each segment. This should be a presentation to the participants. During each segment, ask questions about what the participants think about the program, what information they think is missing or unnecessary, and about what they bring or lack to each of those segments. Allow time for reflection and pair and share opportunities for what they believe they need more in order to be able to fully engage in this program.

After the presentation and discussions, allow participants to do a "draft" program of the TPACK. Have them work in groups of at least 4 so that they can accomplish a good rough draft

before they leave this session. Have mentor teachers available in this session so that each group has a person available to them to ask questions and help to guide them if necessary.

What is TPACK? Technological pedagogical content knowledge (TPACK) includes pulling together effective teaching, understanding representations, constructive ways of using technology, knowing how technology can focus on problem areas that students face with a particular concept, including student's prior knowledge of technologies, and how technologies are used to add on and create new student knowledge. The three main areas of focus are Content Knowledge, Pedagogical Knowledge, and Technology Knowledge.

*Content knowledge***.** The first area is content knowledge which relates to what teachers know about the subject that they will be teaching. Teachers learn from the Department of Education what specific requirements are necessary to be taught each year for each curricula area. They are also able to obtain various lesson plans, review videos, and more through the same website. In addition, school systems provide items such as a curriculum map, pacing guides, and samples plans, some also provide a mentor in that curricula to guide the new and current teachers.

*Pedagogical knowledge***.** Pedagogical knowledge is the second area of focus in this program. Knowing the processes, practices, and methods of teaching students curricula is skills that teachers bring to the job. They will also have a variety of other skills to contribute such as including purposes for learning and developing the value of the curricula. Teachers, along with their prior information, also have to be knowledgeable and understand how students learn, classroom management, writing lesson plans, and how to have valid assessments.

Pedagogical content knowledge is when curricula standards are adjusted to teach using technology. In order to do this, there are several steps. First the subject matter needs to be

dissected as to what is the specific information to be learned. Then the teacher looks at various ways to represent lessons to teach using methods that include alternatives and careful consideration of students' prior knowledge. This area focuses on complementing each section with each other: teaching, learning, curriculum, assessments and reporting. In addition, the need to ensure that there is linking between curriculums, assessments, and pedagogy.

*Technology knowledge***.** The third area is technology knowledge. Teachers' information about how to use technology, tools, resources, and how technology can be applied in lessons and used in a variety of ways is valued in this area. The teachers must also recognize when using technology is a benefit or a detriment to learning. Understanding ways to adapt when technology information changes, which is ongoing.

Technology content knowledge is the understanding of how technology and curricula can influence and constrain each other. In this area, teachers have to become "technology experts" so that they can understand which technologies are best for the subject and whether the subject will dictate the use of a particular technology or if the technology will change the focus of the subject content.

Technological content knowledge involves more of the teachers understanding what aspects that technology can change within curriculums. Teachers need to recognize that changes in lessons might be necessary when technology is involved. When planning lessons, careful consideration needs to be addressed to recognize how and if using technology will change the focus of the lesson or if the lesson content will affect which technology should be used.

Technological pedagogical knowledge is the understanding of the changes in teaching and learning when using technology. Teachers need to understand that this involves how

technologies are representing lessons as well as any disciplines that need to be noted and whether these lessons are appropriate for the student population involved.

Helpful websites

Helpful websites for TPACK information as well as interaction with others using the programs follows:

- www.tpack.org – To gain complete access, you need to register for the site, get approved by the administrator and then you can participate in discussions and access a plethora of information about TPACK usage and resources.
- http://www.matt-koehler.com/tpack/tpack-explained/ - This website contains information about the various segments of the TPACK program. There are also additional links to further information and explanations that users can search.
- https://www.youtube.com/watch?v=WskYJIxDLzc&list=UUtV7LwKwzWfGZ8l1nXHKIsQ – Video to learn how to contribute to others that also use the TPACK program. http://mendeley.com/ - Website that participants can research more about the TPACK and how others are using the program. Must register to gain a free account and access to the documents.
- http://joshuamrosenberg.com/wp-content/uploads/2014/01/ICT-teacher-education-Module-1-Final_May-20.pdf - The Technological Pedagogical Content Knowledge Framework for
- Teachers and Teacher Educators document by Matt Kohler, Punya Mishra, Mete Akcaoglu, and Joshua M. Rosenberg.

Session 4

Objective

This session is to provide all participants a change to watch modeling of the various technology uses by the mentors. They will be able to also participate in a hands-on segment where they can practice some of the techniques they learned during the four sessions. Participants can work with mentors to ask questions and get assistance when trying new skills or from the modeling activities they watched at the start of the session.

Required Technology

All participants will return to the session 1 classrooms for this session. Ensure that all devices are booted and prepared for the session. Be available for any technical issues with the devices

Session Lesson Plan

Begin the session with the mentors modeling various skills and techniques that were demonstrated during the day. Have mentors also provide creative strategies to use the limited equipment. Recommended website for this session is www.edutopia.org/technology-integration-guide-activities. This link will take you directly to sample lessons. Mentors may use their own plans for the modeling but students that would like to see plans created that demonstrated the integration, the edutopia site has four different lessons that fit various grade levels. Ensure that the specific software each lesson requires is available. If the software is not available, either have the software installed or skip the lesson. Many website requirements are free for signup for participants.

Mentor Assignments

As early at 1997, there was found a need to have mentors when it comes to technology in education. In a document by Paula Knight and Pati Albaugh, training of teachers through intensive technology classes will prepare them to be mentors for other teachers at their facilities.

Teachers will be selected for training prior to this professional development course. They will attend and participant in training and then be mentors to teachers in their facilities. Each mentor will provide ideas, critiques, problem-solving and evaluate how her mentee is progressing. Not only will the mentor perform their duties but the transference of information between the mentor and the mentee will be additional learning opportunities for both individuals.

Each participant will be assigned a mentor for the school year. It is the desire that at the end of the year, a new group of teachers will be able to fulfill the mentoring positions as well for the upcoming and new teachers that enter their facilities. In addition, we look forward to these same teachers to provide training opportunities at professional developments such as this one.

Participants will be introduced to their mentor and be provided with contact information. Further communication will be outside of this professional development. If there is an issue with an assigned mentor, the participants can contact the organizer of this professional development to discuss options.

Session Survey

On a scale of 1 – 10, 1 the least and 10 the highest ability, please indicate your ability.

1. Able to operate all technological devices within my building without assistance. _____
2. Able to operate required software programs that operate with devices. _____
3. Obtain devices when needed. _____
4. Use technology within the classroom pedagogy on a daily basis. _____
5. Understand how to use technology with my pedagogy. _____
6. Understand how to integrate technology with my curriculum. _____
7. Successful application of technology with students daily. _____
8. Encourage student exploration through technology. _____
9. Encourage students to share technological knowledge with classmates. _____
10. Receive sufficient technology professional development opportunities. _____
11. I am comfortable using web-based interactive activities for additional professional development opportunities. _____
12. Feel I am fully trained and could mentor others with operating technology. _____
13. Feel I am fully trained and could mentor others with integrating technology within their curriculums. _____
14. Feel I am fully trained and could mentor others with using creativity when there is a lack of or broken devices. _____
15. Would be more open to taking more technology professional development if incentives were provided. _____

Additional Comments:

Integrating Technology Professional Development

Organizer Contact Information:

Session Schedule

Opening	8:00 am - 8:30am
Session 1	8:35 am – 10:05am
Session 2	10:05 am – 11:35 pm
Lunch	11:40 am – 12:10 pm
Session 3	12:15 pm – 1:45 pm
Session 4	1:50pm – 3:20 pm
Mentor Assignments	3:25 pm – 3:55 pm
Closing	4:00 pm – 4:15 pm

Device Information

Insert Photograph of Device here

Type of Device

_____

Name of Device

_____

Location of Device

_____

How do I reserve this device?

How long can I reserve this device for use?

How do I operate the device?

What required software does the device run?

Reservations

Insert
Screen Shot
of Reservation Shortcut or
Location here

Name of Reservation Coordinator

_____

Email of Coordinator

_____

Building and Room Number

_____

Website link for online reservation systems:_____

Login information :

Steps to reserve equipment.

1.
2.
3.
4.
5.
6.
7..

Software Information

Insert
Screen Shot
of Software Shortcut
here

Name of Software

_____

Purpose of Software

_____

Software Devices

_____

What is this software used for?

How do I open the program?

What are the main features that I need to concentrate on?

Who in the building can assist me if I have problems with the software?

Additional software resources can be found at:

Web: _____

Hardcopy:_____

Session 1 Notes

Session 2 Notes

Session 3 Notes

Session 4 Notes

Mentor Notes

Instructor Contact Information

Website Resources

www.edutopia.org/technology-integration-guide-resources

Personnel Resources

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